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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,322	10/25/2001	Ilona Busenbender	GP-300791	9328
7590	08/30/2004		EXAMINER	
Cary W. Brooks General Motors Corp. - Legal Staff Mail Code 482-C23-B21 PO Box 300 Detroit, MI 48265-3000			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	
			DATE MAILED: 08/30/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/004,322	BUSENBENDER, ILONA
	Examiner	Art Unit
	Jonathan S. Crepeau	1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 27 May 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 15 and 16 is/are allowed.
- 6) Claim(s) 1,3-5 and 9-14 is/are rejected.
- 7) Claim(s) 6-8 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/1/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action addresses claims 1, 3-14, and newly added claims 15 and 16. Claims 15 and 16 are allowed, and claims 6-8 are objected to. Claims 1, 3-5, 9-11, and 13 remain rejected over Hwang and claims 1, 4, 5, 9-14 are newly rejected over Tateishi, but the new rejections over Hwang were not necessitated by amendment. As such, this action is non-final.

### ***Information Disclosure Statement***

2. Regarding the information disclosure statement filed on June 1, 2004, the first foreign patent citation has been modified from “EP-A-97202343.6” to “EP 202343” since a copy of the latter document was supplied with the IDS. However, “97202343.6” is also the application number of publication EP 847097, which has already been made of record in the IDS of 10/5/01. If Applicants wish to further clarify, they are invited to do so in the next reply.

### ***Claim Objections***

3. Claim 5 is objected to because it recites “A product in accordance with claim 1,” whereas claim 1 is directed to a fuel cell. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. Claims 1, 3-5, 9-11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hwang et al (U.S. Patent 6,090,228). Regarding claim 1, the reference is directed to a bipolar plate which is used in a fuel cell (see abstract). Regarding claims 1 and 13, the plate comprises an iron-containing sheet metal core (50) and a protective layer on the top surface (see Fig. 3B; col. 2, line 42). Regarding claims 1 and 6, the protective coating comprises a layer (60) of aluminum oxide (see Fig. 3B; col. 3, line 64). Regarding claims 3, 5, and 9, the protective coating comprises an additional layer (53) of elemental aluminum underneath the aluminum oxide (see col. 3, line 54). Regarding claim 11, the aluminum may be deposited in a vacuum chamber (see col. 4, line 48). Regarding the limitation in claim 1 that the metal oxide is treated to produce a crystal structure ensuring conductivity, this limitation is considered to be inherent in the reference. The separator conducts electrons (see col. 1, line 38), and any coating thereon would have to also conduct electrons for the fuel cell to function properly. As such, the coatings of Hwang would inherently have a “crystal structure...which ensures conductivity.” Regarding claims 4 and 10, the limitation that the metal oxide is treated by doping with aluminum is also considered to be met by the reference since the claimed doping treatment is not seen to result in a structural difference over the reference.

Thus, the instant claims are anticipated.

5. Claims 1, 4, 5, 9-11, 13, and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tateishi et al (U.S. Patent 5,643,690). Regarding claim 1, the reference is directed to a bipolar plate which is used in a fuel cell (see abstract). Regarding claims 1 and 13, the plate comprises a stainless steel sheet and a corrosion-resistant, electrically conductive non-stoichiometric composite oxide layer on the surface thereof (see abstract). This oxide layer would inherently have a crystal structure which ensures conductivity. Regarding claims 4 and 10, the limitation that the metal oxide is treated by doping with chromium is considered to be met by the reference since the claimed doping treatment is not seen to result in a structural difference over the reference. Regarding claim 11, the method of depositing the oxide also does not result in a structural difference over the reference. Regarding claim 14, the thickness of the stainless steel sheet is 200-400 microns (see col. 5, line 58).

Thus, the instant claims are anticipated.

*Claim Rejections - 35 USC § 103*

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi et al. The reference is applied to claims 1, 4, 5, 9-11, 13, and 14 for the reasons stated above. Regarding claim 12, the reference teaches in column 5, line 62 that the oxide layer is less than 50 microns in thickness.

However, the reference does not expressly teach that the layer is between 1 monolayer and 1 micron thick, as recited in claim 12.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to reduce the thickness of the oxide layer of Tateishi so as to fall within the claimed range. In column 5, line 64, the reference teaches that “[t]he thinner the thickness of the non-stoichiometric composite oxide layer is, the smaller the value of electric resistance of the collector plate becomes, thus making it more desirable.” Thus, the instantly claimed range of between 1 monolayer and 1 micron thick would be rendered obvious to the skilled artisan.

*Allowable Subject Matter*

7. Claims 15 and 16 are allowed.
8. Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reasons for allowance of claims 7, 8, 15 and 16 were given in the previous Office action and remain applicable.

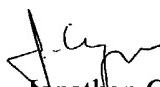
Regarding claims 6, neither Hwang nor Tateishi teach or fairly suggest that the oxide coating layer comprises tin, zinc, or indium.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jonathan Crepeau  
Patent Examiner  
Art Unit 1746  
August 26, 2004